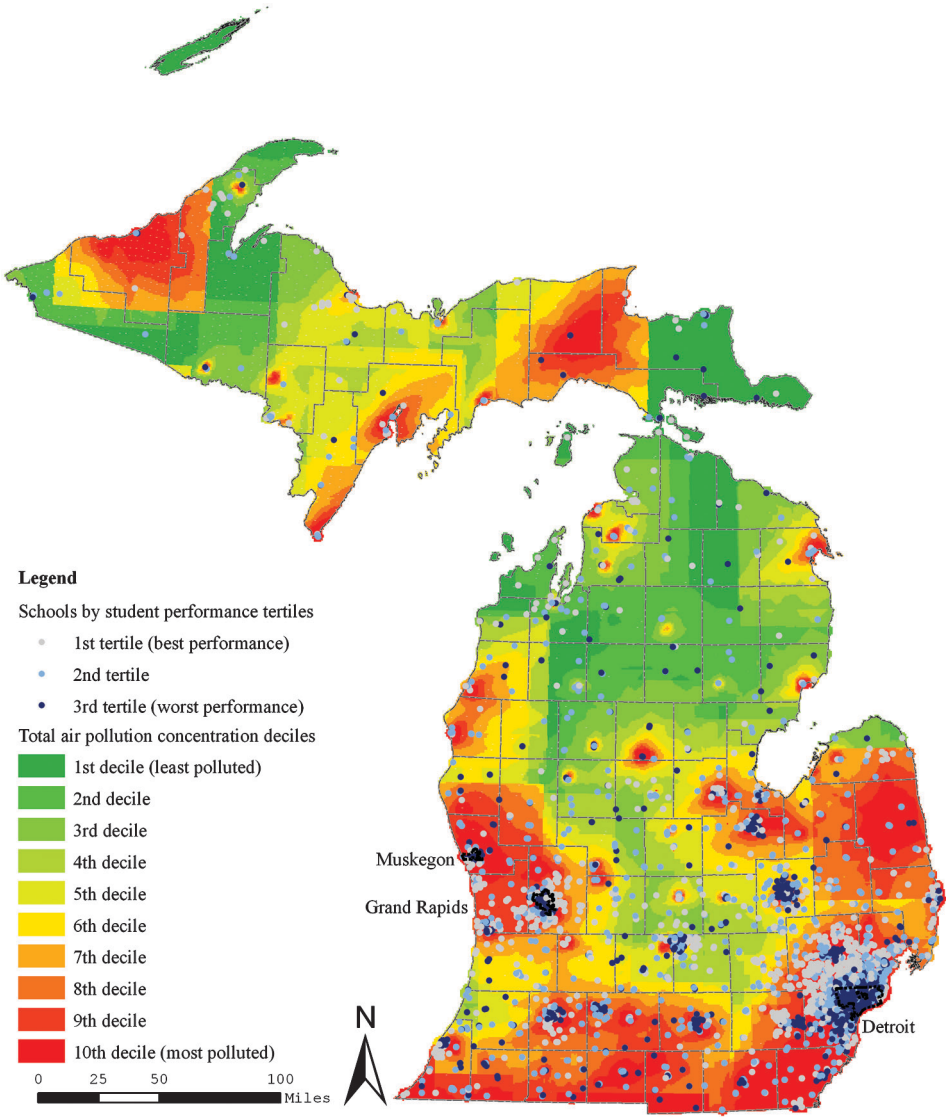
**EXHIBIT 1**

**Deciles Of Total Air Pollution Concentrations From Industrial Sources In Michigan, With School Locations, By Student Performance Tertiles**




**SOURCE** Authors' analysis of geographic microdata for 2006 from Note 23 in text. **NOTES** Only locations of elementary and middle schools are shown. Schools are sorted into three groups (tertiles) based on the percentage of students (grades 3–8 combined) who do not meet the Michigan Educational Assessment Program standards for English. The schools in the first tertile ("best performance") have the lowest percentage of students failing to meet the standards. For more details about the values of air pollution, see the Appendix (see Note 24 in text).

more polluted parts of their districts.

**AIR POLLUTION AND SCHOOL DEMOGRAPHICS** The demographics of the schools' student bodies followed a similar pattern. We found that 44.4 percent of all white schoolchildren in the state attended schools located in grid cells in the 10th (most polluted) decile, but 81.5 percent of all African American schoolchildren and 62.1 percent of all Hispanic schoolchildren did so. In those schools, 62.2 percent of all students were enrolled in the free lunch program, our chief socioeconomic indicator (Exhibit 3).

**AIR POLLUTION, HEALTH, AND ACADEMIC PERFORMANCE** Are air pollution burdens around schools linked to student health and performance? Although we cannot conclusively establish cause and effect linkages from our macro-level analysis, we can nevertheless examine associations and rule out obvious confounding variables, such as school demographics, school expenditures, and locations (suburban versus urban or rural) of schools.[16] And we can deter-